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09/035,617 03/05/98 TOKIMOTO

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LM02/0523

EXAMINER

NELSON, A

ART UNIT

PAPER NUMBER

2775

DATE MAILED:

05/23/00

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.
09/035,617

Applicant(s)
Tokimoto et al.

Examiner
Alecia Nelson

Group Art Unit
2775



☒ Responsive to communication(s) filed on Mar 6, 2000

☐ This action is **FINAL**.

☐ Since this application is in condition for allowance except for formal matters, **prosecution as to the merits is closed** in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire three month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

Disposition of Claims

☒ Claim(s) 1-21 is/are pending in the application.

Of the above, claim(s) _____ is/are withdrawn from consideration.

☐ Claim(s) _____ is/are allowed.

☒ Claim(s) 1-21 is/are rejected.

☐ Claim(s) _____ is/are objected to.

☐ Claims _____ are subject to restriction or election requirement.

Application Papers

☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.

☐ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

☐ All ☐ Some* ☐ None of the CERTIFIED copies of the priority documents have been
☐ received.

☐ received in Application No. (Series Code/Serial Number) _____.

☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

*Certified copies not received: _____

☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

☒ Notice of References Cited, PTO-892

☐ Information Disclosure Statement(s), PTO-1449, Paper No(s). _____

☐ Interview Summary, PTO-413

☐ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Notice of Informal Patent Application, PTO-152

--- SEE OFFICE ACTION ON THE FOLLOWING PAGES ---

Art Unit: 2775

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(f) or (g) prior art under 35 U.S.C. 103(a).

2. **Claims 1-21**, are rejected under 35 U.S.C. 103(a) as being unpatentable over Repperger et al. (U.S. Patent No. 4,632,341).

With reference to **claims 1, 2, 4, 6-11, 13, 15-18, and 21**, Repperger et al. teaches a control stick (108) in the form of a single upright joystick. A pilot assistance system (115) includes a G force-to-electrical signal transducer (114), a computer apparatus enclosure (116), and a

Art Unit: 2775

electrical-to-mechanical transducer enclosure (120) (see column 4, lines 33-45). Accelerometer (330) serves as the G force to electrical signal transducer indicated at (114, Fig 1), this relating to the applied pressure. The computer apparatus enclosure (116) is connected with the transducer apparatus enclosure (120) by way of electrical signal coupling path (118) and the electrical-to-mechanical transducer is connected with the control stick (108) by way of a mechanical signal coupling path (122). The output of the accelerometer (330) is connected by an electrical path (332) to the analog computer (328) which incorporates the predetermined relationship algorithm, this relates to the control information being input to the processing system. The analog computer (328) outputs to a buffer circuit (31) which provides an output having a pair of complementary current signals on the paths (327) and (329) that are capable of driving a pair of current versus fluid pressure transducer valves (316) and (318), this relating to generating feedback information responsive to the control information and the restricting means. The valves are coupled by a pair of pressure fluid conduction paths (320) and (322) to opposite ends of the cylinder (309).. The current versus pressure transducer valves (316) and (318) received pressurized fluid from a source thereof by way of conduit (325) and convey this fluid in varying pressure form to the piston pressure chambers (312) and (314) on opposing sides of the piston (310). The complementary nature of the two buffer output signals causes the fluid pressures in the paths (320) and (322) to also be complementary in nature (see column 7, lines 41-62). Further, it is taught that a force proportional to the sensed G field at (334) will be applied by the mechanical connecting rod (306) to the control stick (300) (see column 7, lines 63-66).

Art Unit: 2775

It is not specifically taught by Repperger et al. that the fluid medium is inclosed in a hermetically sealed manner. With further reference to **claims 7, 16, and 17**, it is not specifically taught that the chamber comprises a shell with an elastic membrane. However, it would seem obvious that the fluid medium is contained, and could be containable in a hermetically sealed manner or comprised of a shell.

Therefore it is obvious to one having ordinary skill in the art at the time of the invention to have a fluid medium joystick device providing force feedback in which the fluid is contained in a hermetically sealed manner to provide a feedback device that has better stability that is capable of reducing the tremor component.

With reference to **claims 3, 5, and 14**, it is taught that the family of curves (500) include an input current scale (506) that describes current flowing between the buffer and driver circuits, that is current crossing the dotted line 417 to enter base electrodes of the two transistors (426) and (428) (see column 9, lines 21-27). The potentiometers (402) and (404) serve to adjust the gain or calibration of the currents flowing in the base electrodes of the transistors (426) and (428) to thereby regulate the current in the collector electrodes (see column 9, lines 36-41).

With reference to **claim 12**, it is taught that the stabilizing force feedback arrangement of the present invention when incorporated into an aircraft can be configured to provide assistance along any one or any combination of the three coordinate axes shown at (222) (see column 5, lines 18-30).

Art Unit: 2775

With reference to **claims 19 and 20**, it is taught that by using a compressed gas as the fluid supplied by the conduit (325) or alternately, may be achieved by allowing a liquid fluid used in the chambers (312) and (314) to be returned through the transducer valves (316) and (318) to a low-pressure sump, upon attainment of predetermined pressures in the chambers (312) and (314) and in response to the application of pilot forces on the connection rod (306) (see column 8, lines 51-61). This thereby teaches that the control data generation means is capable of monitoring the pressure within the chamber.

With reference to **claim 21**, it is taught the usage of a simulated aircraft control stick (604) used in a flight simulator and in a fashion resembling a aircraft cockpit for use in the realistic testing and training of human subjects (see column 11, lines 21-37). This thereby suggest the usage of a similar simulation used in video games.

Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention to allow the control data generation means to be capable of monitoring the pressure within the chamber or for the system to be used as a video game controller.

Response to Arguments

3. Applicant's arguments with respect to **claims 1-21** have been considered but are moot in view of the new ground(s) of rejection.


Art Unit: 2775

Conclusion

4. Any response to this action should be mailed to: Commissioner of Patents and Trademarks Washington, D.C. 20231; or faxed to (703)309-9051, (for formal communications intended for entry) or: (703)308-6606 (for informal or draft communications, please label "PROPOSED or DRAFT). Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive Arlington, VA., Sixth floor (Receptionist).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alecia D. Nelson whose telephone number is (703)305-0143.

If attempts to reach the above examiner by telephone are unsuccessful, the examiner's contact person, Vincent Kovalick, can be reached at (703)305-3020, or the examiner's supervisor, Steve Saras, can be reached at (703)305-9720.



**STEVEN J. SARAS
SUPERVISORY PATENT EXAMINER
GROUP 2700**

adn/ADN
May 21, 2000